



Transportation Synthesis Report

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Information Design for Transportation

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Transportation Synthesis Reports (TSRs) are brief summaries of currently available information on topics of interest to WisDOT technical staff in highway development, construction and operations. Online and print sources include NCHRP and other TRB programs, AASHTO, the research and practices of other state DOTs, and related academic and industry research.

REQUEST FOR REPORT

WisDOT staff in DTID and DTIM are submitting a proposal for a National Cooperative Highway Research Program project that would address the “Use of Information Design for Effective Decision-Making and Communication in Transportation Planning, Operations and Maintenance.” The objective of the research would be to provide a foundation for understanding how transportation agencies can better take advantage of the information design field to make more understandable and intuitive the vast amount of transportation data that is collected. Better understanding through data visualization and other techniques could lead to better decision-making in state DOTs. RD&T was asked to conduct a literature search for sources related to information design for the transportation field.

SUMMARY

The term “information design” refers to the practice of systematically presenting information—and sometimes visually displaying quantitative data—so as to maximize its value and accessibility to the reader. (For a collection of definitions, see <http://design.rit.edu/DAO/define/definemain.html>.) Information designers assert that they draw on methods that allow them to transmit information unusually clearly. Closely related is the field called “information architecture,” which is information design as it applies to designing Web pages. It’s important to distinguish these information designers from the software engineers who use the same term to describe computer code optimization.

Also, the term “data visualization,” which turns up often on transportation-related Web sites, is often limited in scope, primarily to the use of Geographic Information Systems techniques for displaying data on maps.

A limited search of online resources turned up only a few instances of information design, broadly understood, being applied to the transportation field. These are listed below under **Transportation-Related**. A broader search involving conversations with academics in related areas of inquiry could well turn up further published resources. A number of useful Web sites and organizations dedicated to information design are found at **Web Resources**, with academic programs in the field listed at **Degree Programs**. A more exhaustive compilation of the literature on information design, from which to begin a study of its application to transportation data, is listed under **Bibliography**.

TRANSPORTATION RELATED

ITS Data Management and Archiving: A Literature and Best Practices Scan, University of Wisconsin-Madison, Henry X. Liu, Rachel He, Yang Tao, Bin Ran, May 2002

Systematic thinking has occurred related to the collection and presentation of data for intelligent transportation systems uses. A national “information architecture” is well advanced. In this literature review, the authors discuss

data and data visualization for “graphical representation of corporate data” to provide “end users with enhanced capabilities for decision support.” While somewhat narrow in scope, some of the principles of information design for transportation that have been established in the ITS area may be pertinent to the NCHRP study being proposed. The full text of the report is at <http://www.dot.wisconsin.gov/library/research/docs/finalreports/02-11itsdata-f.pdf>.

Using the Internet to Envision Neighborhoods with Transit-Oriented Development Potential, Mineta Transportation Institute, San Jose State University, College of Business, Bossard, EG; Colman, S; Hobbs, J; Keck, K; Reed, D; Roemer, D; Taketa, R; Zheng, D, 2002

Here information design is mentioned as a tool to be used in “envisioning” neighborhood development options. The authors advocate the use of “small replicate maps, charts, images, and tables to facilitate comparisons across space, time, and scale...” “presenting the resulting information in a form useful for understanding conditions, making decisions, and taking action.” The abstract of the study is at

<http://199.79.179.82/sundev/detail.cfm?ANNUMBER=00932396&STARTROW=1&CFID=185499&CFTOKEN=80270060>. The full text of the report is at <http://transweb.sjsu.edu/publications/envisioning2/EnvII.pdf>.

Presentation of Comparative Data for Transportation Planning Studies, Transportation Research Record, Guyton, JW, 1998

The author states that “presentation of technical information in understandable terms has become increasingly critical to the decision-making process.” The paper, however, while acknowledging the need for better approaches, focuses on comparison and ranking techniques for alternative development options. An abstract is at

<http://199.79.179.82/sundev/detail.cfm?ANNUMBER=00755110&STARTROW=1&CFID=185528&CFTOKEN=28747860>. The full report is in Transportation Research Record No. 1617.

WEB SOURCES ON INFORMATION DESIGN

www.edwardtufte.com

Edward Tufte is the best-known apostle of Information Design. His books—including *Visual Explanations*, *Envisioning Information*, and *The Visual Display of Quantitative Information*—are widely used and respected. Tufte is Professor Emeritus at Yale, where he taught information design as well as statistical evidence and interface design. Tufte also teaches seminars in Information Design, one of which is tentatively scheduled for Chicago in September 2003. The Web site also includes a moderated forum about information design.

www.stcsig.org/id/index.html

The Society for Technical Communication (www.stc.org)—an international association of technical writers, editors, designers, and illustrators—has “special interest groups,” including one that focuses on information design. The STC-SIG ID site includes links to PDFs of a dozen issues of *Design Matters*, the STC-SIG ID quarterly newsletter.

www.benamins.nl/idx/

Information Design Journal is the field’s academic publication. But its most recent issue was published in 2001.

www.informationdesign.org

Includes a moderated discussion list that is largely concerned with announcements and a more active unmoderated discussion list.

www.informationdesign.org/ida/index.html

The Information Design Association in the United Kingdom is in the process of being reorganized. Its Web site contains archives of past newsletters and some current information.

www.iiid.net

The International Institute for Information Design is in Vienna, Austria. They do, however, have USA activities, including an upcoming forum in Chicago, *Preparing for the Future of Knowledge Presentation*, May 30–31, 2003. (A PDF of the application is on the front page of their Web site.) The Web site offers the option of German or English. It appears as though the institute does not have a substantial physical presence. Rather it is a collection of ID experts, a list of which appears at www.iiid.net/Definition-e.html.

www.bogieland.com/infodesign/

A news page for information designers.

DEGREE PROGRAMS

<http://www.idp.mdh.se/eng/program.shtml>, Mälardalen University, Sweden
www.online-learning.com/course_id_0.html, online course from online-learning.com
Georgia Institute of Technology
School of Literature, Communication and Culture
Information Design and Technology
Ivan Allen College, 781 Marietta Street
Atlanta, GA 30332-0155 U.S.A.
idt-info@lcc.gatech.edu, 404-894-2730

BIBLIOGRAPHY

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